August 24, 1997

Ms. Ann Merwarth
Manager, HST Operations & Ground Systems Project
Goddard Space Flight Center - Code 441
Greenbelt, MD 20771

RE: HST VISION 2000 Program Review Panel Report

Dear Ann,

Attached is the report from the HST VISION 2000 Program Peer Review Panel. The Panel hopes that the inputs to you and the HST Team are helpful. My apologies for the being so late in getting the report to you and your staff.

I have distributed the report to those listed below and have left the internal Project distribution for your office.

Sincerely,

Gael F. Squibb
Director for
Telecommunications and Mission Operations

Distribution
Preston Burch

Review Panel

Roger Brissenden SAO
David Kaslow   Lockheed Martin
George Morrow   GSFC (Not present for Panel Discussions)
Peter Shames   JPL
Ethan Schreier   STScI
Steve Tompkins   GSFC

HST VISION 2000 PROGRAM

REVIEW PANEL
REPORT

STATUS REVIEW

June 24, 1997

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Gael F. Squibb
Chairman

August 24, 1997

Review Panel Members Present at the Design Confirmation Review

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Dave Kaslow -- Lockheed Martin

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Ethan Schreier STScI

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Peter Shames JPL

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Steve Tompkins GSFC

The Vision 2000 (V2K) review was held at GSFC ON June 24, 1997. The purpose of the review was for the Review Panel to:

Confirm:

The Development progress for

CCS and SSM FSW Product Teams

The Team Status for:

Planning and Scheduling

Science Data Processing

Assess:

The CCS team status in readiness for Release 2.2 delivery to the Vehicle Electrical System Test Facility (VEST) in August 1997.

Validate:

The Project Schedules

and to make comments to the HST O&GS Project Manager that will aid the Project in achieving the Vision presented. The Panel wishes to thank the presenters for the clarity and openness of the presentations that have enabled us to make comments that we hope will be helpful.

GENERAL

The overall impression of the Review Panel is very positive and we congratulate the project on the achievements since the last review. The presenters were knowledgeable, showed ownership of the systems they represented, and the Panel observed that no question caught them off guard

The Review Panel believes that the purpose of the review was met.

The overall suggestion from the Review Panel to the Project is to **keep focused.** Making improvements that are not necessary and adding functionality that had not been planned are tempting during this phase of a development, but can lead to missing important milestones and readiness dates.

KEEP FOCUSED

The Panel has observed a proliferation of individual efforts within the Vision 2000 program over the past few reviews. New efforts such as the PSTOL recertification facility and the Science Channel Dump Data Handling System are examples of these new efforts. While not judging the worth of any of these programs, the Panel is concerned that too many efforts like these may distract the program, with its limited resources and tight budget, from its primary goals of the servicing mission support and the subsequent automation delivery. The Panel has noted other indications that the project is not focusing on the core functions - the CCS component is shifting functions into later releases and adding interim releases to remain on schedule. **The Panel recommends that the project focus on its primary goals, and evaluate new requirements not only from an aspect of their intrinsic benefit, but also consider the impact on diluting the project's attention on the primary goals.** The project may want to consider deleting lower value efforts when higher priority efforts are identified. Similarly, the project may want to consider deleting lower value requirements from CCS rather than pushing requirements from release to release.

INTERFACE AND SYSTEM TESTING

The schedules for development and testing of the ground and flight items are provided in the Operations and Ground Systems Master Schedule, the Third Servicing Mission Vision 2000 Transition Plan, and the individual Vision 2000 Development plans. The level of effort and the coordination of testing cannot be evaluated by looking at just the schedules. The approach to the integrated test of the ground and flight items will be critical to assuring mission success. The test must be able to accommodate individual test

items arriving at different times and accommodate slips to delivery into the test bed. The test must have approved test plans and procedures and must be executed with strict configuration management. The test must have sufficiently robust test data and adequate time for end-to-end testing. The test must thoroughly exercise the interfaces and the mission critical software. The test must demonstrate transition to operations and any backout of transition.

Action: Provide an overview of the integrated test bed operations at the next review. Also provide an overview of transition to operations and any backout of transition.

STAFFING VALIDATION

At the November Review that Panel made the following observation:

The HST Operations and Ground systems Project needs to develop separate labor profiles by fiscal year and functional element for Vision 2000 Development, Servicing Mission Support and on-going maintenance of the legacy system. The importance of understanding and conveying these separate yet interrelated profiles is of utmost importance in the budget climate that exists and will exist during the completion of the Vision 2000 project. The Panel supports the profile that was given for the total effort as shown below but believes that one who is not familiar with the project will need additional information to support the total HST effort.

Functional Area	1995	1996	1997	1998	1999	2000	2001
Planning & Scheduling	96	89	80	80	80	80	45
Spacecraft Operations	234	248	261	261	250	185	79
Data Processing & Archive	51	31	31	31	31	31	27
Flight Software	28	28	30	29	28	23	10
Totals	409	396	402	401	389	319	161

The last development milestone is complete in August 1999 yet the staffing for all PDT's remains either flat or slightly decreases through 2000. **The Panel recommends that the project re-evaluates the staffing profile with the current schedules and make them consistent.**

In addition to the action above, we would add at this time the validation that the developed V2K system will indeed lead to the operations staff reductions that are in the current out year plans. We understand that this is underway and would recommend that the results of this analysis as well as the answer to the November recommendation be included as a specific topic in the next review.